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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/645,981	08/22/2003	Joel A. Drewes	MICRON.263A	8610
20995	7590	08/08/2005	EXAMINER	
KNOBBE MARTENS OLSON & BEAR LLP			HUYNH, ANDY	
2040 MAIN STREET			ART UNIT	
FOURTEENTH FLOOR			PAPER NUMBER	
IRVINE, CA 92614			2818	

DATE MAILED: 08/08/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/645,981

Applicant(s)

DREWES, JOEL A.

Examiner

Andy Huynh

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 July 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) 12 and 18-21 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,5-11,13,16 and 17 is/are rejected.
- 7) ☐ Claim(s) 2-4,14 and 15 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 August 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 11/06/2003.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date: _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

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DETAILED ACTION

Election/Restrictions

In the Response to Restriction Requirement dated July 19, 2005, Applicant has elected Species of Claims **1-11 and 13-17** is acknowledged.

Information Disclosure Statement

This office acknowledges receipt of the following items from the applicant: Information Disclosure Statement (IDS) filed 11/06/2003. The references cited on the PTOL 1449 form have been considered.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

Claims **1, 5, 6, 9, 10 and 13** are rejected under 35 U.S.C. 102(e) as being anticipated by Park et al. (USP 6,781,871 hereinafter referred to as “Park”).

Regarding claim **1**, Park discloses in Figs. 1A-2B and 4, and the corresponding texts as set forth in column 4, line 21-column 7, line 22, a plurality of magnetic memory cells, comprises:

a first magnetic layer 12, 22 shared by the plurality of magnetic memory cells; and

a plurality of second magnetic layers 13, 23, each of which corresponds to a separate one of the plurality of magnetic memory cells;

wherein the first magnetic layer comprises a plurality of domain wall traps formed at predetermined intervals between the magnetic memory cells.

Regarding claims **5 and 6**, Park discloses in Figs. 1A-2B a domain wall trap is formed between each pair of consecutive magnetic memory cells; and multiple magnetic memory cells are formed between each pair of consecutive domain wall traps.

Regarding claim **9**, Park discloses the magnetic memory cells comprise tunneling magnetoresistance (TMR) memory cells (col. 4, lines 25-27).

Regarding claim **10**, Park discloses in Figs. 1A-2B the plurality of magnetic memory cells further comprises one or more barrier layers 15 located between the first magnetic layer and the plurality of second magnetic layers within the plurality of magnetic memory cells.

Regarding claim **13**, Park discloses in Figs. 1A-2B and 4, and the corresponding texts as set forth in column 4, line 21-column 7, line 22, an MRAM device comprises:

a magnetic layer 12 common to a plurality of magnetic memory cells,
wherein the magnetic layer is configured to prevent the formation of a magnetic domain wall within a region of the magnetic layer corresponding to a given memory cell.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person

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having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims **7, 8, 11, 16 and 17** is rejected under 35 U.S.C. 103(a) as being unpatentable over Park et al. (USP 6,781,871 hereinafter referred to as "Park").

Regarding claims **7, 8, 11 and 17**, Park discloses the claimed limitations except for the first magnetic layer comprises a plurality of sublayers comprising tantalum, nickel-iron, magnesium oxide, irridium-manganese, platinum-manganese, nickel-manganese, and/or cobalt-iron; the second magnetic layers comprise a plurality of sublayers comprising tantalum, tungsten nitride, nickel-iron, cobalt, and/or copper; and the one or more barrier layers comprise aluminum oxide. It would have been obvious to one having ordinary skill in the art at the time of the invention was made to form the first magnetic layer comprises a plurality of sublayers comprising tantalum, nickel-iron, magnesium oxide, irridium-manganese, platinum-manganese, nickel-manganese, and/or cobalt-iron; the second magnetic layers comprise a plurality of sublayers comprising tantalum, tungsten nitride, nickel-iron, cobalt, and/or copper; and the one or more barrier layers comprise aluminum oxide, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. In re Leshin, 125 USPQ 416.

Regarding claim **16**, Park discloses the claimed limitations except for the magnetic layer comprises a pinned layer. It would have been obvious to one having ordinary skill in the art at the time of the invention was made to form the magnetic layer comprising a pinned layer, since it has been held that a mere reversal of the essential working parts of a device involves only routine skill in the art. In re Einstein, 8 USPQ 167.

Allowable Subject Matter

Claims **2-4, 14 and 15** are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims, since the prior art made of record and considered pertinent to the applicant's disclosure does not teach or suggest the claimed limitations. The prior art of record, taken alone or in combination, fails to teach the claimed invention the plurality of magnetic memory cells wherein the domain wall traps comprise regions of the first magnetic layer having a narrower width than the remainder of the first magnetic layer as recited in claim **2**; and the MRAM device wherein the width of the magnetic layer narrows at predetermined intervals along the length of the magnetic layer as recited in claim **14**.

Conclusion

A shortened statutory period for response to this action is set to expire 3 (three) months and 0 (zero) day from the day of this letter. Failure to respond within the period for response will cause the application to become abandoned (see M.P.E.P 710.02(b)).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andy Huynh, (571) 272-1781. The examiner can normally be reached on Monday-Friday from 8:30 AM to 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Nelms can be reached on (571) 272-1787. The Fax number for the organization where this application or proceeding is assigned is (703) 872-9306.

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Any inquiry of a general nature or relating to the -status of this application or proceeding should be directed to the receptionist whose phone number is (703) 308-0956.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Ah

Andy Huynh

08/04/05

Patent Examiner